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Journal of Biology, Agriculture and Healthcare
ISSN 2224-3208 (Paper) ISSN 2225-093X (Online)
Vol.3, No.11, 2013
www.iiste.org

Gender Analysis of Labor Input among Yam Farmers in Paiko Local Government Area of Niger State, Nigeria

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Abstract
The study examined gender-based labor input among 60 farming households in Paiko Local government area of Niger State. Simple random technique was used to select 60 households (30 male and 30 female). Primary data were collected using simple random sampling technique and a structured questionnaire was used as instrument. Descriptive and inferential statistics were used to analyze the data collected. The findings of the study revealed that majority of the male and female respondents (76.63%and 78.3 respectively) were aged 20-40 years. The labor input of men was statistically significant than of the women. The output of the men was significant than that of the women. The major constraints of yam farming to the male yam farmers were lack of mechanization, transportation and disease. On the other hand the major constraints faced by the farmers were mechanization; time spent in off-farm activities and transportation. It was recommended that women should also have access to extension services to teach them about new farming techniques. Government should designed policies that will help yam farmers to easily access loans at low interest through micro finance bank. In order to enhance female labor productivity for greater output, farming inducement packages should be instituted. Such packages targeted at women farmers should include easy access to agricultural credit, equal access to farm land and provision of appropriate technologies for yam production.
Key words: Gender, Labor, Yam, Farmers, production, Paiko

1. Background of the study

Yam *(Dioscorea spp)* is a perennial herbaceous vine cultivated for human consumption. The vegetable has a rough skin which is difficult to peel but softens after heating. The skin varies in color from dark brown to light pink. The majority of the vegetable is composed of much of a soft substance known as "meat". This substance ranges in color from white or yellow to purple or pink in nature. Yam tubers can grow up to 1.5meters in length and weight up to 7kg. Nigeria is the largest yam producer in the world with about thirty five million metric tones produced annually (FAO, 2008).

The contribution of women farmers in meeting this challenge of agricultural development cannot be overemphasized. Women make a significant contribution to the food production and processing of food stuff (R*ahman et al;* 2004). They provide some 60-80% of agricultural labor and are responsible for 80% of food production (Ingawa, 1999;Mgbada, 2002; Rahman *et al;* 2004).

Although, about 70% of her population is engaged in agriculture, Nigeria is yet not self sufficient in agricultural production (Obasi and Agu, 2000). The reality is that Nigeria has not yet been able to attain self-sufficiency in annual food production (Udoh, 2005). This may not be unrelated to the fact that despite women's significant contribution to Nigeria's agricultural production, women's productivity is often constrained by a lack of access to productive resources (World Bank, 2001, Odame *et al.,* 2002 and Welch *et al*., 2000). Women have battled with various socioeconomic obstacles which affect their productivity in the agricultural sector. Even though it has been recognized that they play a major role in food production and processing, women have more difficulty in gaining access to resources such as land, credit and productivity-enhancing inputs and services than men {Rahman, 2009). Agriculture uses combination of male and female household labor and hired labor. Hired labor in many areas of the world is solely composed of men, while most of the fami1y labor in agriculture is often offered by women and children (Shaw, 2004). Farm operations that require a lot of energy such as land clearing and land preparation are predominantly carried out by men, while women predominantly carried out relatively lighter operations in the farm which include processing, harvesting and storage (Audu, 2009). The labor productivity of men however, tends to be higher than that of women. A study of farm households in Nasarawa State, revealed that every one hour spent by a man on farm work produced more extra output compared to the case of women due to the fact that men had more access to productive resources compared to the women **(**Rahman**,** 2009). This was also the observation in Lavun L G A of Niger State where women's productivity was 35% while that of men was 65% (Tsado and Umar, 2009).

Despite their tendency to have lower labor productivity, Rahman *et al.,* (2004) observed that women often carry the major responsibility for both farm production and domestic work. This probably explains why the average production per farm tends to be lower in countries in which women represent the larger share of agricultural labor force than men (Udry, 1995).This study compares the labor input and output of male and female managed

farms in a bid to estimate the labor contribution of men and women to yam production in the study area.

2. Methodology

The study area

The study was carried out in Paiko Local Government Area (LGA) of Niger State which lies between latitude 9 ° 36' and 9° 4' North and longitude 6° 36' and 7° 2'East and is situated in agricultural zone of Niger State. Simple random sampling technique was used to select 30 male respondents and 30 female respondents making a total of 60 respondents from the study area. Descriptive statistics which included frequency distribution and percentages as well as inferential statistics (T- test) were both used to analyze the data obtained from the study.

3. Result and Discussions

3.1 Socio-economic Characteristics of Yam Farmers

The socio-economic characteristics studied included age, educational status, years of experience in yam farming, household size, primary occupation, marital status, goal of production, distance of the farm from home, number of extension visits and sources of fund. Table 1 shows the socio-economic characteristics of male and female yam farmers. Majority (76.66%) of the male respondents were 40years and below. On the other hand 83.3% of the female respondents were aged 40years and below. This indicates that most of the respondents were in their productive age with the women being generally younger than the men. Table 1 also showed that most of the male respondents (56.7%) were illiterates with no formal education. Majority of the female respondents (66.7%) were illiterates. The male were more educated than the female because the girl child was usually denied access to education. The high percentage of respondents with no formal education may be attributed to the rural nature of the study area, where access to education is usually more limited than in the urban area. Majority of the male respondents (73.4%) had less than 19 years experience in yam farming while 26.7% had 19-30 years experience in yam farming. Most of the female respondents (93.4%) however, had less than 19 years experience in farming while only 6.6% had over 19 years experience in yam farming. This is probably because traditionally, yam production was men's work.

Most of the male respondents (80%) had household sizes of between 5 - 15 persons, while about 73% of the female respondents had household sizes of less than 10 persons. The result suggests that men had larger household sizes compared to women because some of the men were polygamous, a practice sometimes engaged in for the purpose of acquiring more family labor to work on the farm. This suggests that men have more access to family labor than women.

Primary occupation of most of the male respondents (50%) and most of the female respondents (56.7%) was farming. Commonly in the area, most people who were primarily traders or civil servants also practiced farming as their secondary occupation and yam was the major crop produced among the farmers. Majority of the male respondents (83.3%) and majority of the female respondents interviewed (60%) were married. This indicated that most of the yam farmers in the study area had families of their own to cater for. Some of the male respondents (40%) were into yam farming for both commercial and subsistence purposes, 33.3% for commerce only and 26.7% for subsistence only. This implies that 73.3% of male respondents were wholly or partly involved in yam production for commercial reasons.

Most of the female respondents (76.7%) were into yam farming for commercial and subsistence reasons, 13.3% for commercial only and 10% for subsistence only. This result indicated that most of the respondents' goal of production was for market and home consumption therefore the output was both for the family as source of food and income for the family. Household consumption was apparently more important to the female respondents than the male.

Majority of the male respondents (66.7%) had their farms 1-2.5km away from home, while 33.3% had their farms 3-4km away from home. Majority of the female respondents (83.3%) had their farms 1-2.5km away from home, while (16.7%) had farms 3-4km far away from home. This result indicated that the male respondents had their farms a bit farther away from their homes compared to the female respondents. More male respondents were having distant farms than the female farmers. This may be as a result of male respondents seeking larger farm lands which were only available further away from home. The result on Table 1 further indicated that men had more access to extension visits than the female respondents which means that extension visits are directed toward male farmers and majority of the female respondents did not have much access to extension visits. This was probably because of some cultural and religious norms in the study area which limited interactions between the largely male extension workers and the female farmers. Family and friends were the commonest sources of farming finance for both male and female yam farmers in the study area.

3.2 Labor contribution of men and women to male managed farms

Table 2 shows the level of family and hired labor contribution by both male and female in male managed farms. The result shows that the larger the farm size, the lower the percentage of female family labor used. This is

probably because as farm size increases, male family labor involved in non farm labor are recalled to the farm to augment family labor supply. Table 2 shows that on the whole, there is a significantly higher family male labor supply than female family labor supply at 1% level of significance. This could be because the female labor is also used in the female farms, thus reducing their presence in male managed farms.

Female hired labor increased with increase in size of male managed farms although the percentage contribution of female hired labor to male managed farms was lower than their percentage contribution to family labor. The increasing female hired labor in male managed farms could result from the need to acquire all available labor, including female hired labor in the peak season. The larger the farms, the larger the labor requirement, and the more the available female hired labor is engaged. There was significant difference between male and female hired labor contribution at 1% level of significance.

It was observed that for both family and hired labor, Men offered more labor than women This was probably because of the other responsibilities competing for the woman's time and energy among which are her own farm (for women who had access to farm land), domestic chores and off farm activities. Total hired labor supplied to the male managed farms (23%) was observed to be much lower than total family labor supplied (77%). This may have been as a result of availability of family labor which is less financially demanding when compared with hired labor that requires immediate remuneration. It is not uncommon for small farms to run only on family labor.

3. 3 Contribution of men and women to female managed farms

Table 3 showed the level of family and hired labor contribution by both male and female hands in female managed farms. The result indicated that majority of the family labor was offered by women in female managed farms. The female contribution to family labor was statistically significant at 1% level of significance. This result indicated that men contributed relatively little family labor to the female managed farms. Indeed, men contributed less to female managed farms than the proportion of women's family labor that went into male managed farms (see Table 2). There is an indication that women in a family worked more in female managed farms while men in the family on the other hand, worked more in male managed farms. In addition, the result in Table 3 compared to Table 2 indicates that women spent more time in male managed farms than men did in female managed farms. This may be because it was traditional for women to assist in the farms of the male household heads while the male household heads did not need to work in female managed farms. This finding agree with that of Shaw (2004) on gender differential of farm labor contribution in farms in Kenya who observed that most of the family labor in agriculture is offered by women and children. This is because women were regarded as men's properties in the study area. The women were culturally compelled to offer much family labor in male managed farms of their husbands. Male contribution to female managed farms however increased with increase in farm size.

Table3 showed that in terms of hired labor, there was more female hired labor used in female managed farms than male labor although male contribution increased with increase in farm size. The level of hired labor input between female and male respondents in female managed farms was analyzed using the paired t- test. There was a significant difference (1%) between the male and female labor used in female managed farms both in terms of family labor and hired labor. This finding indicated that the female hired labor input was greater than the male labor input in the female managed farms. The result differed from the findings of Shaw (2004) who found that hired labor was often made up of male labor than female labor. This was probably because at peak periods, male hired labor was more engaged with male managed farms which were generally larger. Furthermore, it is probable that female hired labor which is usually less costly than male hired labor was more attractive to women whose farms were generally smaller than those of the male managed farms and who had less access to credit. Women who were landless often offered themselves as labor for hire during peak periods.

3.4 Level of output of male and female in female managed farms managed

Table 4 showed Level of output of male and female in female managed farms. The result indicated that while only about 7% of output came from farms less than 2ha among male farms, about 30% of the output from female managed farms came from farms with less than 2ha. Over 70% of male output was on the other hand produced in farms about 3ha and above while over 70% of female output came from farms that were about 2ha. This implies that farm size was an important determinant of yam output. The output of male and female yam farmers was analyzed using unpaired t-test and there was a significant difference between the output of male and female yam farmers at 1% level of significance. This indicated that the output of male managed farms was significantly higher than that of the female farms. This finding may be because men had more access to farm land and were more experienced than the female farmers. Besides, the time available to women to spend on farm production is limited by their other time demanding domestic responsibilities. Access to opportunities like extension visits and credit where men had an edge over women could also have limited yield in female managed farms.

3.5 Problems encountered by yam farmers

Table 4.5 showed the problems affecting yam farmers in the study area. The major constraints to the male farmers according to the order of ranking were mechanization, transportation, disease and storage (1st, 2nd, 3rd

and 4th). The least problems among the male farmers were hired labor, seeds, family labor and time spent on household chores (7th, 8th, 9th, and 10th). The major constraints of the female respondents according to the order of ranking were; mechanization, time spent in house hold chores, disease, and lack of credit (1st, 2nd, 3rd and 4th). The lesser constraints of the female respondents to yam farming in the study area according to ranking were; hired labor, storage, family labor, staking materials and yam sett (8th, 9th, 10th, 11th and 12th).
The result indicated that both male and female yam farmers considered mechanization as their major constraint as it makes their work slow and very tasking. Transportation is also considered a problem because yam is heavy, bulky and can easily break so transporting it can be difficult. Inability to transport mean low income and probably losses resulting from breakages and spoilage. Disease was also a constraint to the yam farmers, especially when in storage. Yam attacked by pest and disease results in losses reflected by fall in the price of the yam. The male farms considered storage as a major problem while the female respondents considered lack of access to credit a major constraint. Time spent on household chores was a minor problem to male respondents since they were not responsible for household chores. It was a major constraint to the female respondents as it affected the amount of time they could spend on their farms for production purposes.

4. Conclusion

This study was conducted in Paiko LGA of Niger state; Nigeria to analysis gender labor inputs among yam farmers. The results showed that yam farming was the primary occupation of most people in the study area. The labor contribution of men was greater than that of the women because male farms were generally bigger than female managed farms thus men's yam output was also more than that of women. Women were disadvantaged in the production of yam because of the access they had to resource like land, credit and extension visits. Women were also less experienced than men and were more time constrained than men because they were responsible for domestic chores. as well as farming in both the woman's farm and the husband's farm. It was recommended that women in the area should have their access to land, mechanization, credit and extension visit should be enhanced among the farmers especially the women.

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Table 1 Socio-economic Characteristics of Male and Female Yam Farmers

	Male (n=30)		Female (n=30)	
Variables	Frequency	Percentage	Frequency	Percentage
Age				
20 and below	1	3.33	3	10.0
21-30	9	30.0	18	60.0
31-40	13	43.3	4	13.3
41-50	6	20.0	5	16.7
Greater than 50	1	3.33	0	0.00
Level of education				
No formal education	17	56.7	20	66.7
Primary education	9	30.0	7	23.3
Secondary education	4	13.3	3	10.0
Marital status				
Married	25	83.3	18	60.0
Divorced	2	6.7	5	16.7
Widowed	3	10.0	7	23.3
Yam farming experience				
7-12	14	46.7	20	66.7
13-18	8	26.7	8	26.7
19-24	5	16.6	2	6.6
25-30	3	10.0	0	0.00
Primary occupation				
Farming	15	50.0	17	56.7
Civil servant	6	20.0	1	3.3
Trading	9	30.0	12	40.0
Household size				
Less than 5	0	0.00	6	20.0
5-9	10	33.3	16	53.3
10-14	14	46.7	8	26.7
15-19	5	16.7	0	0.00
20 and above	1	3.3	0	0.00
Goal of production				
For market	10	33.3	4	13.3
Subsistence	8	26.7	3	10.0
Both	12	40.0	23	76.7
Distance of the farm from home (km)				
1-1.5	9	30.0	10	33.3
2-2.5	11	36.7	15	50.0
3-3.5	6	20.0	5	16.7
3.6-4.0	4	13.3	0	0.00
Number of extension visits				
1-2	13	43.3	25	83.3
3-4	11	36.7	3	10.0
5-6	4	13.3	2	6.7
Above 6	2	6.7	0	0.00
Source of funds				

Family	11	36.7	12	40.0
Friends	8	26.7	8	26.7
Banks	5	16.6	3	10.0
Money lenders	6	20.0	7	23.3

Source: Field survey, 2012
Source: field survey, 2012

Table 2: Average family and hired labor contribution to male and female managed farms by farm size

		Contribution of male a and female to family and hired labor by farm size **(%)**		Contribution of family and hired labor to total farm labor (%)	Contribution of male and female to family and hired labor (%)			
	Farm size (ha)	male	Female	Male and female	male	female	T value	P value
Family Labor	< 2	65	35	77.15	19.15	8.05	18.61***	0.000
	≥ 2< 3	70	30					
	≥ 3	72.2	27.8					
Hired Labor	< 2	92	8	22.85	7.06	1.00	16.61***	0.000
	≥ 2< 3	84.5	15.5					
	≥ 3	88.14	11.86					

Source: field survey, 2012 *** = Significant at 1%

Table 3: Contribution of men and women to female managed farms

		Contribution of male and female farmers to family and hired labor by farm size		Contribution of family and hired labor to total farm labor	Contribution of male and female respondents to family and hired labor (%)			
	Farm size(ha)	Male	Female	Male and female	male	female	T-value	P-value
Family labor	< 2	7.6	92.4	66.5	10.4	89.6	32.998***	0.000
	≥ 2	12.0	88.0					
Hired labor	< 2	14.0	86.0	33.5	25.0	75.0	11.244***	0.000
	≥ 2	29.0	71.0					

Source: field survey, 2012.
*** = Significant at 1%

Table 4: Level of output of male and female in female managed farms managed

Farm size (ha)		output (Kg)	%	mean	T value	P value
Male	< 2	331	7.4			
	≥ 2< 3	873	19.6			
	≤ 3	3251	73.0	148.50		
					8.54***	0.000
Female						
	< 2	1035	29.7			
	≤ 2	2447	70.3	116.07		

Source; field survey, 2012 ***Significant at 1%

Table 5: Problems encounter by yam farmers (male and female respondents n=60)

	Male n=30			Female n=30		
Problems	Frequency	Percentage	Rank	Frequency	Percentage	Rank
Pest and Disease	10	33.3	3	15	50	3
Land Acquisition	2	6.67	8	6	20	9
Lack of Credit	7	23.3	5	13	43.3	4
Transportation	12	.to	2	15	50	3
Fertilizer		3.33	9	5	16.7	9
Storage	10	33.3	3	12	40	5
Seeds (Yam sett)	3	10.0	8	2	6.67	12
Labor (hired)	5	16.7	7	7	23.3	8
Labor (Family)		3.33	9	5	16.7	10
Mechanization	27	90.0	1	28	93.3	1
Insecticide	7	23.3	6	8	26.7	7
Herbicide	8	26.7	5	10	33.3	6
Staking Material	3	10.0	8	3	10.0	11
Time spent on other house hold chores	2	6.67	10	24	80	2

Multiple responses Source: Field survey, 2012.

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